NORTH BAY DISTRICT

FISHERIES MANAGEMENT PLAN
1987 - 2000

Ontario
Ministry of
Natural
Resources

90-02842/

Additional copies of this publication
are obtainable only from:

Ministry of Natural Resources
North Bay District Office
P.O. Box 3070
North Bay, Ontario
P1B 8K7
Telephone: (705) 474-5550

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Printed in Ontario, Canada

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PREFACE

The Ministry of Natural Resources is responsible for the management of Ontario's natural resources, particularly those related to resource development and outdoor recreation. As part of this mandate, the North Bay District Land Use Guidelines were prepared in 1983 to provide a design for integrated resource development in the North Bay District. The Guidelines outline objectives and targets for sport and commercial fishing, as well as general management strategies to achieve the targets. This District Fisheries Management Plan provides more specific information about how the fisheries resource is to be managed. Proposed long-term management strategies have been identified for the planning period from the present through to the year 2000. Proposed short-term actions for the first five years are also included in an implementation schedule. The plan will be reviewed and additional implementation schedules will be prepared every five years after that. Work plans will be prepared annually based on the priorities established in the implementation schedules.

A draft version of this document was prepared and made available to any interested groups or individuals. A questionnaire was distributed with the draft document. All completed questionnaires and responses from the public were analysed, with the analysis being used to prepare this Fisheries Management Plan.

Regional Director

Northeastern Region

District Manager

North Bay District

1.0 INTRODUCTION

1.1 PURPOSE

The North Bay District Fisheries Management Plan has been prepared to provide approved long-term resource management direction for fisheries resource managers and to inform others of management activities planned. Short-term management actions are also provided in an implementation schedule. The first implementation schedule, included with this plan, covers the next five years to 1991. Subsequent implementation schedules will also be prepared for five-year intervals with an overall review of the plan taking place each five years.

The location of the North Bay Administrative District of the Ministry of Natural Resources is shown in Figure 1. This Fisheries Management Plan provides management direction for the fisheries in the waterbodies located within this District.

1.2 PLANNING PROCESS AND TECHNICAL DIRECTION

The procedures followed in preparing this Fisheries Management Plan conform to the planning process outlined in the report entitled "A Framework for Resource Management Planning in MNR" which was prepared by the Policy and Planning Secretariat in 1986.

A formalized land use planning process for this area was initiated with the Strategic Land Use Plan for Northeastern Ontario.

This planning process provided general direction for integrated resource management, and was followed by the North Bay District Land Use Guidelines, which gave more specific information about program targets and approaches. The objectives and targets presented in these Guidelines for the District's fisheries resources are being reviewed and modified where necessary as part of the process for this Fisheries Management Plan. Major goals and strategies for Ontario fisheries were identified by the federal-provincial committee for the Strategic Planning for Ontario Fisheries (SPOF) in their 1976 report (Anon., 1976). Reports produced by several SPOF working groups provided technical direction used in preparing this Fisheries Management Plan.

The fisheries management planning process identifies sensitive sites requiring protection and waterbodies to which access should be increased or limited. This information can then be inputted to other resource management plans and The District Roads Committee. The Ministry of Natural Resources follows a policy of integrated resource management. Integrated resource management is the coordination of resource management programs and activities so that long-term benefits are optimized and conflicts between programs are minimized. The Fisheries Management Plan and its implementation schedule also provides direction for a District enforcement plan by identifying priorities and shortfalls in the enforcement program. Communications were maintained with adjacent districts and regions throughout the planning period to ensure there were no conflicts.

An informal program-planning process is in place for Lake Nipissing, with public meetings held regularly to present management options. This procedure will be formalized, with a plan written for five-year intervals, scheduled to be completed one year in advance of the review period for the Fisheries Management Plan. This will ensure that targets and management strategies for Lake Nipissing can be incorporated into the implementation schedules for the Fisheries Management Plan.

Figure 1

PROVINCIAL AND REGIONAL SETTING OF NORTH BAY DISTRICT

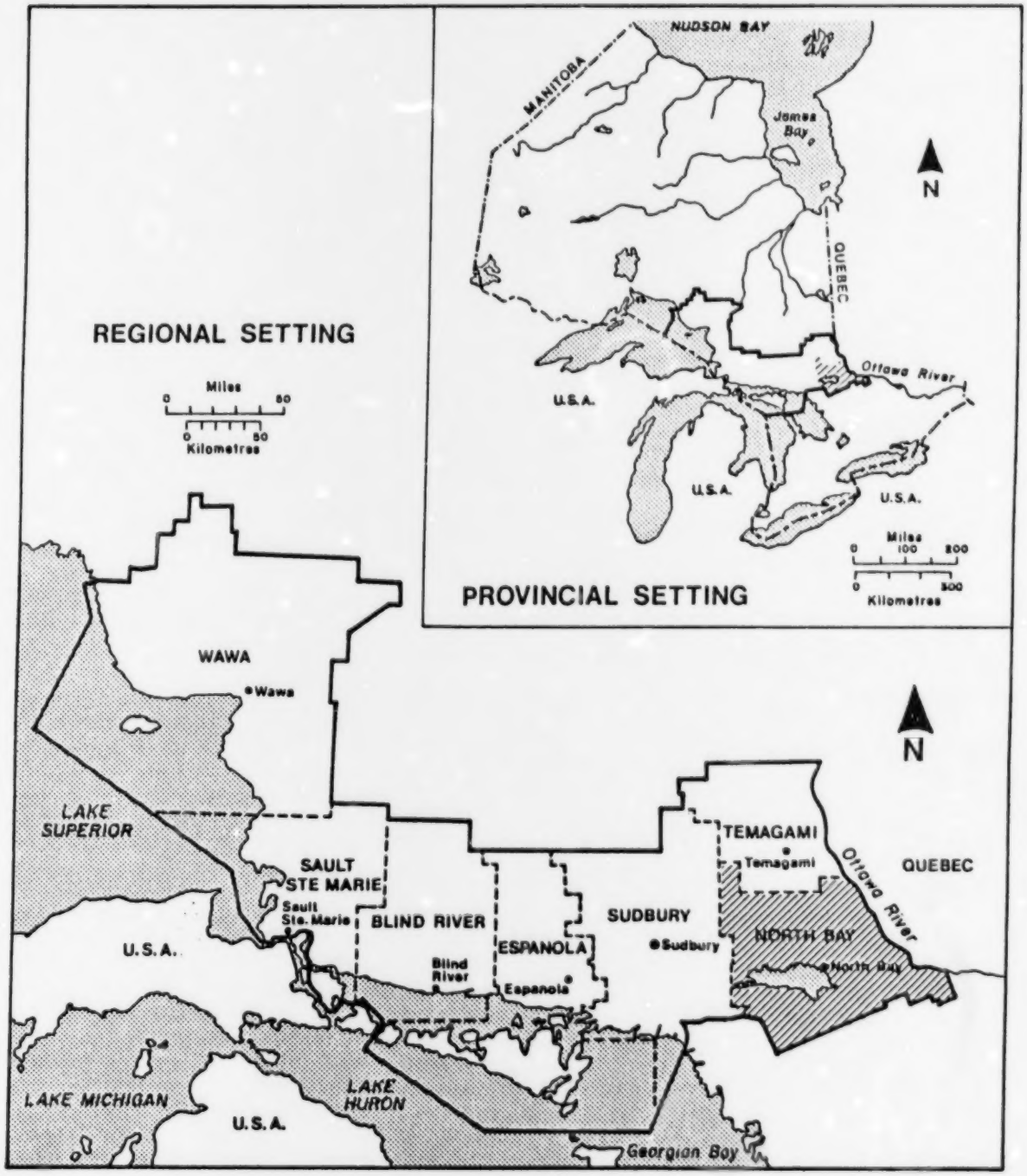
North Bay District

District Administrative Boundary

Northeastern Region Administrative Boundary

Provincial Boundary

International Boundary



1.3 BACKGROUND INFORMATION

This management plan only highlights some of the background studies, planning efforts and analyses undertaken as part of the fisheries management planning process. The following supporting documents or analyses were prepared for the development of this Plan and are available at the North Bay District Office:

- Terms of Reference - identified what was to be accomplished, who would be involved in the planning process and when each stage would be completed.

- Detailed Background Information - provided a comprehensive analysis of information about the District's waterbodies and their fish populations, allowable yields, critical fish habitats, fisheries resource use and projected demand, problems and current management practices.

- Background Information and Optional Management Strategies and Tactics: A Summary - summarized the background information and highlighted problems and optional management strategies and tactics to enable the public to review and provide input.

- Summary of Public Response to Background Information and Optional Strategies and Tactics - summarized results of public comment on the Background Information and Optional Strategies and Tactics.

- Summary of Public Response to Draft Fisheries Management Plan - summarized results of public comment on the draft plan.

2.0 DISTRICT FISHERIES PERSPECTIVE

2.1 THE RESOURCE BASE

The North Bay District extends over 11,932 square kilometers, of which approximately 75 percent is Crown land. There are 1,452 lakes in the District (excluding Lake Nipissing) with a combined area of 44,873 ha. Lake Nipissing adds an additional 85,470 ha. The District also has 949 km of coldwater streams and 526 km of warmwater streams which are considered significant to the fisheries resource. The District is divided into two separate drainage systems. The eastern portion is drained by the Mattawa-Ottawa River system to the St. Lawrence River and the western portion is drained by the Sturgeon River - Lake Nipissing - French River system to Georgian Bay.

The following waters are located primarily in adjacent districts: Wilson, Hangstone, Cross, Temagami, Obabika, Murray, Maskinonge, Gawasi and Kiosk Lakes, the Wolesley River and the West Arm of Lake Nipissing. Management of these waterbodies will be addressed by plans prepared in those districts.

The North Bay area experiences relatively severe winters and short, warm summers. Mean daily temperatures are -13.30°C for January and 18.90°C for July. Precipitation is moderate in all seasons.

Lake Nipissing accounts for over 60 percent of the water surface area in the District, while coldwater lakes rivers and streams represent only 12.8 percent.Estimated annual allowable harvests have been calculated for the major fish species in the District (Table 1). The total estimated allowable harvest of all major species for the District is 466,029 kg per year. Trout species contribute 14,100 kg to this total and walleye represent an additional 141,100 kg. At present, not all District waterbodies are producing to their full potential as a result of a variety of stresses.

TABLE 1

TOTAL ESTIMATED ALLOWABLE YIELD OF FISH SPECIES
FROM LAKES AND STREAMS IN NORTH BAY DISTRICT

FISH SPECIES	# OF WATERBODIES WITH SPECIES PRESENT		WATER AREA AVAILABLE TO SPECIES			TOTAL ESTIMATED ALLOWABLE HARVEST (KG/YEAR)	PERCENT OF TOTAL
	LAKES	STREAMS	LAKES (HA)	STREAMS (HA)	(KM)		
RAINBOW TROUT	6	11	1,970	150	175	1,380	0.3
BROOK TROUT	126	75	4,721	753	1,049	3,866	0.8
LAKE TROUT	41		13,842			8,000	1.7
SPLAKE	11		620			823	0.2
LAKE HERRING*	1		85,470			24,930	5.4
LAKE WHITEFISH	28		99,914			35,448	7.6
NORTHERN PIKE	197	16	112,380	3,923	332	101,767	21.8
MUSKELLUNGE	18	3	93,007	3,161	75	9,404	2.0
SMALLMOUTH BASS	180	13	114,223	1,309	313	69,457	14.9
LARGEMOUTH BASS	57	1	94,381	4	8	8,219	1.8
YELLOW PERCH*	1		85,470			51,667	11.1
WALLEYE	83	25	107,344	4,691	490	141,100	30.3
OTHERS* (WHITE BASS, FRESHWATER DRUM, ETC.)	1		85,470			9,968	2.1
					TOTAL	466,029	

* species considered for Lake Nipissing only

Stocking is a management technique which has been used frequently in the past to provide additional angling opportunities for desired fish species. Stocking can be used to introduce new species to waterbodies, to supplement existing populations and to rehabilitate populations which have declined or disappeared. In the past lake trout and brook trout were the main species stocked, with some stocking of rainbow trout, muskellunge and walleye. There were also a few adult transfers of smallmouth and largemouth bass. More recently there has been additional emphasis on the stocking of walleye, rainbow trout and splake. There have been a number of Community Fisheries Involvement Projects (CFIPs) implemented in the District recently to rear and stock walleye and rainbow trout. Interested groups and individuals in the area have volunteered their time to cooperate with the Ministry of Natural Resources on these projects. CFIP walleye stocking projects will be re-evaluated upon completion of the provincial walleye experimental stocking project to determine when, where and how CFIP walleye stocking should be used.

2.2 CURRENT AND PROJECTED RESOURCE USE

SPORT FISH

Sportfishing pressure in North Bay District is estimated to be approximately 443,300 angler-days annually. Approximately 12 percent of this total is generated by non-resident anglers. Anglers harvest approximately 303,600 kg of fish from District waters annually. Walleye make up approximately 44 percent of this harvest, while trout contribute only 4 percent to the total. Other species such as bass, pike and perch make up the remainder of the catch (Table 2).

Lake Nipissing anglers account for two-thirds of the fishing pressure in the District and 81 percent of the total District harvest by weight.

The walleye population in Lake Nipissing is currently being harvested at a level equal to the maximum allowable yield. In order to maintain current catch rates, projected fishing pressure to the year 2000 must remain unchanged. The estimated angling pressure for the remainder of the District is expected to increase 12 percent by the year 2000. This will result in an overall increase of 4 percent for the entire District, including Lake Nipissing. The projected number of angler-days is therefore expected to increase to 461,300 annually with an anticipated annual harvest of 316,700 kg of fish by the year 2000.

There are approximately 230 tourist operators in North Bay District who rely upon the sport fish resource for all or part of their business. Approximately 126 of these businesses are located on Lake Nipissing.

COMMERCIAL FISH

There is one commercial fishing licence in North Bay District. It is issued for Lake Nipissing and the licencee is allowed to use 15 pound nets. In 1985 the commercial fish harvest from Lake Nipissing consisted of 632 kg of sturgeon, 53 kg of caviar, 216 kg of lake herring, 4,020 kg of lake whitefish, 48 kg of white bass and 420 kg of suckers for a total of 5,390 kg. Quotas which have been established allow the licencee to harvest 907 kg of sturgeon, 11,791 kg of lake whitefish, 11,338 kg of lake herring and unlimited amounts of white bass and and coarse fish. Most of these species are under-harvested at present due to market conditions. Quotas will be modified when biological data suggest it is necessary, and the commercial fishery will be encouraged to take the annual allowable harvest.

TABLE 2: SPORT FISHERY - CURRENT AND PROJECTED RESOURCE USE AND DEMAND

SPECIES	CURRENT USE		PROJECTED DEMAND	
	KG/YR	ANGLER-DAYS*	KG/YR	ANGLER-DAYS*
TROUT	12,200	40,500	13,600	45,400
WALLEYE	134,700	344,500	138,300	351,600
OTHER SPECIES	156,700	329,200	164,800	335,200
TOTAL SPORT FISHERY	303,600	443,300*	316,700	461,300*

* One angler-day equals 4 hours. Individual species angler-days will not add up to the total shown because many anglers, when interviewed, indicated that they were fishing for more than one species.

BAIT FISH

In 1985 there were 129 bait fish harvesting licences issued for 51 of the 81 townships in North Bay District. There were 264,000 dozen bait fish caught in 1985, and the value of bait fish sold was $240,000. The 10-year mean for bait fish harvests is 200,000 dozen. The demand for bait fish is expected to increase 4 percent by the year 2000, corresponding to the anticipated increase in angling pressure. This would result in a projected average annual bait fish harvest of 208,000 dozen.

2.3 PROBLEMS AND ISSUES

There are a number of problems and issues which affect the fisheries resource and its management in North Bay District. The list of major problems identified in the background report has been amended following public response, and includes the following: habitat degradation, shortage of walleye and trout, overfishing of specific resources, lack of public awareness, lack of knowledge about the resource and access. A general overview of the problems and proposed management strategies and tactics is presented in Appendix 1. Specific problems, strategies and tactics for each management zone are discussed in Section 3.3. A brief description of the major problems is as follows:

2.3.1 HABITAT DEGRADATION

Habitat degradation includes both the loss of physical structures such as spawning beds and the impairment of water quality. Factors which can contribute to this problem in this District are shoreline modifications, water level fluctuations, acidification, agricultural and forest management practices, drainage programs, industrial pollution and contaminants such as mercury.

2.3.2 SHORTAGE OF WALLEYE AND TROUT

Lake Nipissing accounts for over 60 percent of the water surface area in the District, while coldwater lakes, rivers and streams represent only 12.8 percent of the total. Walleye and trout are the preferred species for most anglers in this District; however, fishing opportunities are not equally distributed throughout the District and some areas have a shortage of walleye or trout populations to meet the demand. The problem may not be solvable in all cases because the solution is dependent upon there being waterbodies suitable for supporting the desired species. (Warmwater lakes cannot be turned into coldwater lakes capable of supporting a trout population.) Not all the coldwater lakes, rivers and streams in the District are producing trout to their full potential. All waters capable of producing trout must be managed to their full potential in order to meet District demand. Some of these waters are not capable of sustaining natural reproduction. Populations in these lakes can only be maintained by stocking.

2.3.3 OVER-FISHING

Over-fishing is a serious problem in fisheries management. It can lead to an over-harvest situation or it can result in a poorer quality of fishing experience (through reduced catches) even though the resource may not be over-harvested.

Over-harvesting occurs if the productivity of a specific fish resource is diminished by the effects of fishing.

Poaching contributes to the over-fishing problem. Sometimes competition for a fisheries resource exists between a variety of groups using the resource; for example, summer versus winter anglers, the tourist industry versus local anglers and also members of the Indian bands who harvest fish. These competing uses can all lead to an over-fishing problem.

Negotiations are presently underway to develop fishing agreements with Indian bands in Ontario and this matter will not be addressed in this Plan.

2.3.4 LACK OF PUBLIC AWARENESS

Fisheries management programs will not succeed if they are not understood and supported by the general public. It is essential that members of the public understand the problems and their underlying causes while appreciating the concepts of aquatic ecosystem productivity, species interactions and sound management practices. A common misconception is that stocking is the only solution to a shortage of fishing opportunities, even though it may not be economically or biologically feasible and there may be more appropriate management techniques available. Lack of public awareness can lead to unrealistic demands upon the resource and limited attention to fisheries concerns.

2.3.5 INSUFFICIENT SCIENTIFIC KNOWLEDGE

Effective fisheries management is dependent upon a good data base. We require more information about use of and demand for the resource, fish communities and their associated habitats, causes of stock depletion, stream fisheries and the effectiveness of stocking programs.

2.3.6 ACCESS

Both a lack of access and too much access can create problems for a fishery and its users. When no access exists, anglers are unable to utilize the fish from a waterbody. Fisheries from inaccessible waterbodies may comprise a significant proportion of an area's potential fish production. When a waterbody cannot be accessed, it is difficult or impossible to conduct management work there to improve the fishery.

On the other hand, increased access sometimes leads to over-harvest. Tourist operators often want some lakes near their camps to remain relatively inaccessible so that a quality fishery will exist nearby for their clients.

Whether access to a waterbody is considered good or bad depends upon the fish species present and the use made of that fishery.

3.0 MANAGEMENT DIRECTION

3.1 GENERAL FISHERIES MANAGEMENT OBJECTIVES

The general goal of the Ministry of Natural Resources is: "To provide opportunities for continuous economic and social benefits to the people of Ontario through the development and conservation of Ontario's natural resources."

The fisheries management objective stated in the Strategic Land Use Plan for Northeastern Ontario is:"To protect, enhance, maintain and rehabilitate fish communities and their environment in order to provide an optimum contribution of fish, fishing opportunities, and their associated benefits to society."

3.2 SPECIFIC FISHERIES MANAGEMENT OBJECTIVES AND TARGETS AND GENERAL MANAGEMENT STRATEGIES

Specific objectives and targets were identified in the North Bay District Land Use Guidelines (DLUG) for sport fishing, lake trout and commercial fishing. Following a review and updating of fisheries resource data, some of these objectives and targets have been revised or combined, and objectives and targets for bait fish have also been included. These revised objectives and targets are outlined below.

3.2.1 SPORT FISH

OBJECTIVE:To maintain opportunities for a diversified angling experience and meet the future angling demand for all species within the limits of sustained yield management.

TARGET

To satisfy a demand for 461,300 angling opportunities annually, based on an annual allowable harvest of 316,700 kg by the year 2000. A more detailed presentation of the sport fish targets is given in Table 3.

DISCUSSION

The target for the sport fishery given in DLUG was 447,000 angler-days. Revised and updated data indicate that the anticipated number of angler-days by the year 2000 is closer to 461,300.

The anticipated annual harvest for the District is 316,700 kg of fish by the year 2000. Walleye and trout represent approximately 44 percent and 4 percent of this total respectively.

In responding to the questionnaire included with the background document, the majority of anglers and tourist operators identified walleye as their most preferred sport fish. Anglers indicated that brook trout and lake trout were their next most preferred species, while tourist operators listed northern pike and smallmouth bass as their second and third choices.

It will only be possible to meet the demand for walleye and trout if all waters capable of producing these species are managed to their full potential.

At present,the demand for other species such as bass, pike, perch and whitefish is well below their potential yields. Encouraging a greater use of these species will help to meet future demand for fishing opportunities and will provide a higher success rate.

When the District Land Use Guidelines were prepared,all District lake trout lakes were divided into the following five categories:

A1 lakes --- lakes which are totally surrounded by Crown lands and have excellent, naturally reproducing populations. Since natural reproduction is adequate, these lakes will not be stocked.

A2 lakes --- lakes which have excellent naturally reproducing lake trout populations but with some private shoreline. Since natural reproduction is adequate, these lakes will not be stocked.

B1 lakes --- lakes which are totally surrounded by Crown lands, but have some environmental constraints to lake trout production (i.e: poor water quality at some times of the year). These lakes may be stocked.

B2 lakes --- lakes which have some private shoreline and which have some environmental constraints to lake trout production. These lakes may be stocked.

C lakes --- lakes which have minimal populations of lake trout. These lakes may be stocked.

As a result of new information, the categorization of some lakes has been changed since the District Land Use Guidelines were prepared. The revised classification of this District's lake trout lakes is shown in Table 4. Management strategies for each category were outlined in DLUG and remain basically the same. Lake trout lakes are generally considered to be the least fertile and most fragile aquatic ecosystems, which necessitates specific management strategies for these waterbodies.

TABLE 3

PROJECTED DEMAND FOR SPORT FISHING

IN NORTH BAY DISTRICT AND POTENTIAL

ANNUAL ALLOWABLE YIELD

		PROJECTED DEMAND -YEAR 2000		POTENTIAL*** ANNUAL
	SPECIES	ANGLER-DAYS*	HARVEST (KG)	YIELD (KG)
Lake Nipissing	Walleye	284,400	104,700	104,700
	Other	279,700	139,800	227,400
	TOTAL**	293,200	244,500	332,100
Remainder of District	Trout	45,400	13,600	14,100
	Walleye	67,200	33,600	36,400
	Other	55,500	25,000	63,100
	TOTAL	168,100	72,200	113,600

* One angler-day equals 4 hours

** Individual species angler-days will not add up to the total shown because many anglers, when interviewed, indicated that they were fishing for more than one species.

*** Indicates what waters are capable of producing. Some waters may be under-producing at present. If all waterbodies are managed to produce to their full potential, the demand can be met.

TABLE 4

CLASSIFICATION OF NORTH BAY DISTRICT LAKE TROUT LAKES

A1	A2	B1	B2	C
Cucumber	Clear (Transparent)	Blue	Bear	Cahill
Cut	Emerald	Dana	Clear (Watt)	Crooked (Twist)
Eaglerock	Manitou	Hangstone*	Hampel (Clear)	Deschamps
Turtleshell*	Obabika*	Iron	Kearney	Gauvreau
	Temagami*	Rachel	Marten	Guilmette
		Spring	McConnell	Hobbs (Kennedy)
		Unnamed (Adrienne)	Memesagamesing	Perron
			Papineau	Pond
			Restoule	Red Cedar
			Stormy (Patterson)	Three Trails
			Swalwell (Crooked)	Timber
			Talon	Twenty Minute
			Trout	Woods
			Turtle	
			Wawiashkashi (Grassy)	

* Partially in Temagami District

3.2.2 BAIT FISH

OBJECTIVE

To maintain stable bait fish populations while allowing for a harvest by commercial industries and local anglers.

TARGET

To meet demand for an average annual harvest of 208,000 dozen bait fish by the year 2000.

DISCUSSION

It is expected that the demand for bait fish in the North Bay District will increase in proportion to the increase in angling effort. This would result in an increase of 4 percent in the bait fish harvest. Bait fish are presently under-harvested in parts of the District, so it is assumed that the resource will be able to meet this projected demand. Bait fish licences are issued on an area basis with the eventual goal of having one major operator per bait fish management area.

The main problems relating to bait fish are insufficient scientific knowledge and an insufficient bait fish supply to meet demand in midsummer. The recommended strategy to address the first problem is to improve the management and reporting systems for bait fish harvests. This could be done by continuing to licence bait fish areas using an exclusive-use block system so that each operator can manage their area for a sustained harvest and provide harvest reports for the area. Additional tactics would include monitoring harvest levels through annual bait fish harvest returns, encouraging accurate harvest records and inspecting bait fish dealers' facilities on a regular basis.

The recommended strategy to deal with the second problem is to minimize over-harvests and conflicts between users. The suggested tactics to accomplish this include continuing to licence bait fish areas using an exclusive-use block system so that each operator can manage their area for a sustained harvest, permitting tourist operators to harvest bait fish for use by their clients, encouraging private aquaculture of bait fish (provided there will be no detrimental effects on the sport fishery), ensuring that exclusive-use blocks are being adequately utilized and continuing to issue commercial bait fish seining licences for blocks fronting townships around the shore of Lake Nipissing.

3.2.3 COMMERCIAL FISH

OBJECTIVE

To encourage the harvest of commercial fish populations in Lake Nipissing under the quota management system, when it is biologically and economically feasible.

TARGET

The commercial fishery on Lake Nipissing will be encouraged to take the annual quota of 11,800 kg of lake whitefish and 11,300 kg of lake herring. Sturgeon will be managed to maintain the species.

DISCUSSION

There is one commercial fishing licence in North Bay District. It is issued for Lake Nipissing and the licencee is allowed to use 15 pound nets. Preference will be given to native applicants if any additional licences are issued for Lake Nipissing. No licences will be issued on other waterbodies in the District.

There will not be any commercial fishing licences issued for the Ottawa River because a commercial fishery there is not economically viable and can have an adverse impact on the sport fishery.

In 1985 the commercial fish harvest from Lake Nipissing consisted of 632 kg of sturgeon, 53 kg of caviar, 216 kg of lake herring, 4,020 kg of lake whitefish, 48 kg of white bass and 420 kg of suckers for a total of 5,390 kg.

Most of the commercially caught fish species in Lake Nipissing are underharvested at present, due to economic conditions.

Quotas will be reviewed every 5 years and changed if necessary.

The two main problems with respect to North Bay's commercial fishery are a decline of the sturgeon population and under-harvesting of commercially caught fish species (lake whitefish, lake herring and coarse fish). Recommended strategies to deal with the first problem are to limit the commercial harvest of sturgeon and to improve sturgeon spawning sites. The harvest could be controlled by reducing quotas, if monitoring suggests it is necessary, continuing the season closure in June while sturgeon are spawning and continuing the use of minimum size limits for commercial harvests of sturgeon. Spawning sites could be improved by encouraging programs to reduce the amounts of waste material entering the Sturgeon River through input to Ministry of the Environment pollution abatement programs. The proposed strategy to address the second problem is to encourage utilization of commercially caught fish species by providing brochures which promote the edibility of these species and describe cooking methods and by producing news-releases encouraging use of these species.

3.2.4 ENFORCEMENT

The District enforcement program will be enhanced to help meet the targets identified in this plan. Enforcement efforts will be focussed on problem areas highlighted in this plan with particular emphasis on walleye and trout species throughout the district and on Lake Nipissing, because of its extreme importance as a fisheries resource in the district. Protection of fish habitat will also be another key component of the District enforcement program.

Enforcement officers will continue to respond to reports of illegal activities; however, there will be an increasing emphasis on proactive enforcement, with public education programs aimed at reducing the occurrence of infractions.

3.3 MANAGEMENT ZONES

North Bay District can be divided into a number of geographic areas based on the fisheries resources present, resource use patterns and fisheries-related problems. These 9 zones are shown in Figures 2 and 3. Specific fisheries management strategies and tactics for each zone are presented in this section.

3.3.1 LAKE NIPISSING

Management programs for Lake Nipissing also include the Upper French River and the lower portions of several tributaries which are all included in Division 27 as described in Schedule 1 of the Ontario Fishery Regulations. Management of the West Arm area of the lake is addressed in the Sudbury District Fisheries Management Plan though, because it is biologically distinct from the remainder of the lake and it is intended that the West Arm area will eventually be removed from Division 27 of Schedule 1 of the Ontario Fishery Regulations.

Because of its extreme importance as a fisheries resource in the District, a separate planning process is in place for Lake Nipissing. The five-year review period for the Lake Nipissing planning process will be adjusted though, so that it is completed one year in advance of the review period for this plan. The Lake Nipissing fisheries management program will then be incorporated into the District Fisheries Management Plan. The next opportunity for public input in the Lake Nipissing planning process will occur in 1990.

A number of individuals have expressed a concern that fish harvests by members of local Indian bands are placing excessive pressure on the Lake Nipissing fishery. This is a complex issue which is being dealt with in negotiations presently underway to develop fishing agreements with Indian bands in Ontario. This matter will therefore not be addressed in this plan.

Because of its large size and important contribution to the fisheries of North Bay District, Lake Nipissing receives special attention through the ongoing programs of the Lake Nipissing Fisheries Assessment Unit. These programs are designed to monitor trends in the harvest, the structure of the fish community, the use of the resource and key elements of fish habitat so that the effectiveness of fisheries management initiatives on the lake can be assessed.

Major Problems

Over-fishing

- walleye and pike in Lake Nipissing are currently being harvested at a level equal to the maximum allowable yield

- a variety of user groups, including winter and summer anglers, local Indian bands and tourist operators are sometimes in conflict over use of the resource

Management Tactics

- increase enforcement effort on the lake to reduce poaching

- maintain spring sanctuaries (March 15 to the Friday preceding the Victoria Day weekend) and fall sanctuaries (October 1 to December 31) at the following locations:

    - Callander Bay -The waters of Callander Bay and the south channel lying south of a line from the government dock to Darling Island

    - South River - The waters of the South River lying between the bridge at Hwy. 654 and Lake Nipissing

	Sturgeon River - The waters of the Sturgeon River lying between the bridge at Hwy. 17 and Lake Nipissing
	- maintain a spring sanctuary (March 15 to the Friday preceding the Victoria Day weekend) for 100 metres out from the shore of Iron Island
	- maintain shortened seasons for walleye and pike (from the Saturday preceding Victoria Day to March 15)
	- continue restriction to the use of only one line while angling through the ice
	- encourage greater public involvement in management projects for Lake Nipissing
	- negotiate solutions to user group conflicts
Habitat Degradation	
- water quality problems have arisen due to erosion and eutrophication in the Wasi River watershed, effluent output into the Sturgeon River from the MacMillan-Bloedel plant and eutrophication resulting from sewage treatment facilities output	- provide input to both internal and external plans and proposals (e.g. environmental assessments, severance proposals, shoreline development proposals, timber management plans, other resource management plans, road proposals, municipal plans, etc.)
- water level fluctuations cause a decrease in fish winter habitat, a loss of spawning habitat and a decrease in food production	- carry out on-site inspections of projects such as road construction, dredging or clearing activities to ensure that habitat degradation doesn't occur, or is mitigated
- some degradation of spawning habitat has occurred	- enforce existing legislation to prevent habitat degradation (e.g. Fisheries Act, Lakes and Rivers Improvement Act, etc.)
	- inventory spawning and rearing habitats and improve any which are degraded as they are identified (some of the work could be done through CFIP projects)

	provide input to the Sturgeon River - Lake Nipissing - French River watershed advisory board to ensure maintenance of adequate water levels
	- improve the spawning habitat in the Sturgeon River following an improvement in the water quality
	- provide input to ensure that fisheries concerns are adequately addressed during improvements to the Callander sewage lagoon and other sewage treatment facilities around the lake
	- participate with the North Bay-Mattawa Conservation Authority, Chisholm Township, the Ministry of Agriculture and Food, the Ministry of the Environment and local landowners to address erosion and nutrient enrichment problems in the Wasi River watershed
Insufficient Scientific Knowledge	- conduct annual summer and winter creel surveys for main areas of the lake to determine angling pressure, angler success and fish population status
- information is lacking on fish populations, harvests and habitats for parts of the lake	
- information on sturgeon spawning habitat, harvests and aging techniques is required	- conduct a fall creel census 2 out of every 5 years to determine angling pressure, angler success and fish population status
- little is known about the survival of "catch-and-release" walleye taken from deeper waters	
- trend-through-time data is essential for assessing any changes in the management of the lake's fishery	- conduct a summer creel census on West Bay and the Upper French River 2 out of every 5 years to determine angling pressure, angler success and fish population status
	- conduct a trawl-netting project annually to assess the annual recruitment of walleye into the population

- conduct annual trap-netting and tagging projects to assess the status of the walleye population, its age structure and dispersal patterns, to provide fertilized eggs for walleye rearing projects and to provide additional fish population data (tagging sites include Wasi Falls, Chapman Chutes and the West end of the lake)

- conduct an annual computer analysis of the data collected in the above-mentioned projects

- conduct benthos and plankton sampling once every five years

- collect water chemistry and limnology data at 10 sampling stations on the lake 2 out of every 5 years (water samples to be analyzed by the Ministry of the Environment)

- continue littoral macrophyte and shoreline vegetation survey until completed

- monitor and sample the commercial fish harvest

- conduct analysis of data collected on other species besides walleye, pike and perch

- conduct a study to assess sturgeon spawning habitat and harvests

- investigate available aging techniques for sturgeon and encourage research projects to develop better techniques

- initiate a study to assess the survival of "catch- and -release" walleye taken from deeper waters

3.3.2. Zone 1

The primary fisheries in Zone 1 are relatively small, productive, naturally reproducing lake trout lakes such as Emerald, Manitou and Cucumber, which are currently being fished close to or beyond the allowable yield. Walleye fisheries are in short supply.

Public meetings were held in 1986 to select fisheries management tactics to address specific problems for the zone. Since public meetings were already held to decide upon these management tactics, they will be implemented without change. A description of these management tactics follows. Also included are some additional management tactics which were not dealt with in 1986.

Major Problems	Management Tactics
Over-fishing of Lake Trout Several lakes are harvested at or above provincial guidelines	- revoke current winter sanctuaries on Emerald, Manitou, Eaglerock and Turtleshell Lakes and place January sanctuaries on Emerald, Manitou, Eaglerock, Turtleshell, Gull, Cucumber, Lower Bass, Clearwater, Pond and Woods Lakes (completed-in effect January 1989) - monitor fishing pressure on remaining lake trout lakes and include them in the January closure if evidence of over-harvest occurs in the future
Shortage of Walleye and Trout (To meet District demand for trout fishing opportunities all trout waterbodies must be managed to produce trout to their full potential)	- protect lake trout populations receiving heavy fishing pressure with January sanctuaries - introduce splake to Iron, Pond and Woods Lakes (completed 1987) and others to be identified by surveys (Iron Lake splake will provide fishing opportunities in January when heavily-fished lake trout lakes are closed. Pond and Woods Lakes splake will buffer lake trout fishing pressure during February and March). Iron and Woods Lakes to be stocked every other year and Pond Lake to be stocked every year - introduce walleye to Grassy Lake (completed 1987 and 1988) - rehabilitate walleye in Silver and Tee Lakes through habitat improvement and stocking (commenced 1988)

- conduct rehabilitation stocking of walleye in Silver, Tee and Grassy Lakes (commenced 1986 for Silver Lake and 1987 for Grassy Lake)

- improve walleye spawning beds in Grassy Lake (commenced 1987)

- encourage CFIP projects to stock walleye in Theriault, Sargesson and Hobbs Lakes (Theriault stocked 1986)

- Conduct an experimental splake stocking and assessment project in Brownbear Lake, stocking it every other year

- stock lake trout in Dana, Grassy and Rachel Lakes

- conduct an experimental stocking and assessment of brook trout in Silver Creek (commenced 1988)

- stock brook trout in Dwyer Lake annually and implement a no live baitfish regulation (regulation change submitted 1988)

- stock brook trout in Apple and High Lakes every second year (subject to assessment)

- stock splake in Splake and Hybrid Lakes every other year

- introduce rainbow trout to Arcand Lake

Insufficient Scientific Knowledge

- conduct a stocking assessment for all walleye and trout lakes stocked (Manitou and Emerald Lakes assessed 1985)

- conduct a stocking assessment of brook trout in Apple Lake

- assess Sinton Creek to determine its suitability for brook trout supplemental stocking

- survey Clem and McNish Lakes to determine if they are suitable for gamefish species introductions and/or management (survey complete on McNish Lake - 1988)

- assess the walleye spawning habitat of the zone's major walleye lakes (eg. Weever Lake)

- conduct a stocking assessment of splake in Splake and Hybrid Lakes

- conduct a stocking assessment of lake trout in Dana and Rachel Lakes

- encourage tourist operators on major tourism lakes to collect creel census information

- survey #2 and #3 Lakes (Afton Twp.), #5 and #17 Lakes (Scholes Twp.) and #15 Lake (Macbeth Twp.) to see if they are suitable for gamefish introductions and/or management

- conduct experimental stocking of brook trout in Azen, McArty, Theriault, Sinton and Black Creeks (commenced - 1988)

3.3.3 ZONE 2

The sport fishery in this zone relies mainly upon walleye. Some of the larger and more productive lakes include Wicksteed, Marten, Marian, Red Cedar and Tilden Lakes. There are important lake trout fisheries in Marten and Bear Lakes, but otherwise there is a shortage of coldwater fisheries throughout the zone.

Major Problems	Management Tactics
Habitat Degradation	- maintain open communications between the Ministry of Natural Resources, Ontario Hydro and all user groups to identify concerns and discuss solutions
- water level fluctuations on Island and Red Cedar Lakes	

Sturgeon Lake is acidic and Rock Island, Noble, Bear, North Spruce, Hammell, Poplar, Ross and Finlayson Lakes are extremely sensitive to acidification	- assess pH levels of these waterbodies during the spring run-off - consider walleye introductions in the Spruce Lakes chain if the acidification problem can be resolved - experiment with put-grow-and-take stocking of walleye where acidification problems cannot be resolved - support acidification studies being conducted by this Ministry and other agencies - conduct alkalinity testing for Little Tomiko Lake
Shortage of Walleye and Trout - perceived decline in the zone's walleye fisheries	- encourage stocking of walleye through CFIP projects in Tilden, Marten, Opeechee, Opeechee Boys, Marian and Red Cedar Lakes - stock walleye in Little Tomiko Lake as part of the experimental walleye stocking project (commenced 1988) - improve walleye spawning habitat on the following waters: Opeechee Lake, Tilden Lake, Holdridge Creek and others where a need is identified (Tilden Lake completed, 1988) - survey Turcotte and Oderkirk Lakes to determine their suitability for walleye management (Oderkirk surveyed 1988) - place a winter sanctuary on Wicksteed Lake to protect tourism values (regulation change submitted 1988)
- shortage of coldwater fisheries	- maintain existing put-grow-and-take stocking of splake in Wolf Lake every other year and in Kervin Lake every year

	- implement a no live baitfish regulation for Kervin Lake
	- survey Minnow, Spot, #2 and #4 Lakes (Gladman Township), Finlayson Lake (McLaren Township) and Lake #10 (Stewart Township) (and others if the access is improved) to determine if they are suitable for stocking and/or management of gamefish species
	- protect naturally reproducing lake trout populations in Marten and Bear Lakes by assessing spawning habitat, improving it if necessary and protecting it through plan input and review
	- continue supplemental stocking of lake trout in Bear Lake and Marten Lake until stocking assessment is complete
	- protect brook trout habitat in the Tomiko, Little Tomiko and Little Sturgeon Rivers through plan review
	- stock brook trout in the upper portion of the Tomiko River to supplement existing populations and assess to determine success of stocking
Access - further access in certain areas will be detrimental to local tourist operations	- identify and protect the tourism values associated with waterbodies when providing input to the district road planning process and resource management plan preparation
Insufficient Scientific Knowledge	- conduct stocking assessments of all walleye and trout lakes stocked
	- conduct a stocking assessment of lake trout in Marten and Bear Lakes (Marten Lake assessment commenced 1985)

assess spawning habitat in all major walleye lakes

- encourage tourist operators on major tourism lakes to collect creel census information (commenced 1987)

- assess walleye populations to determine if decline is real or perceived.

3.3.4 ZONE 3

This zone, which includes the McConnell Lakes area, is characterized by a number of small, highly productive coldwater lakes which have limited natural reproduction. A few shallow, warmwater lakes add to the variety of angling opportunities. The McConnell Lakes area is an important recreational area popular for both day-use and over-night camping. An interim land use plan for the area was completed in 1980. This plan was subsequently incorporated into DLUG. Problems were identified during that planning exercise, and fisheries policies were developed. These previously identified problems and management tactics are outlined below, along with several new management approaches initiated or proposed since then.

Major Problems	Management Tactics
Over-fishing of Lake Trout	- stock lake trout in suitable lakes such as McConnell, Threetrails and Spring to maintain populations
	- maintain fish sanctuaries on Cut and McConnell Lakes from October 1 to April 30
	- restrict the use of live bait in all trout lakes without perch
	- ensure campgrounds are not located adjacent to the best lake trout lakes such as Spring, Cut and McConnell
	- make no effort to improve winter access beyond that required for other purposes

Shortage of Walleye and Trout - to meet District demand for trout fishing opportunities all suitable waterbodies must be managed to produce trout to their full potential	- protect lake trout populations from over-fishing using the tactics mentioned above - stock brook trout in lakes having histories of producing large fish and in readily accessible brook trout waters (Stock Shanty, Round and Troutbait Lakes annually. Stock Norway, Pole, Mug, Emerald, Secord, Camp, Quarry and Pine Lakes every other year.) - limit vehicle access to Green and Sure Catch Lakes and Opimika Creek to protect naturally reproducing brook trout - stock splake in Blue, Big McDougal, Reynolds and Jimmie Lakes (every year in Blue and Jimmie, alternate years in Big McDougal and every three years in Reynolds) - stock rainbow trout every other year where waters are not best suited to providing lake or brook trout, such as in Orient, Wyse and Little McDougal Lakes - conduct an experimental brook trout stocking in Modder Lake (stocking it every three years) and implement a no live baitfish regulation (regulation change submitted 1988) - introduce splake to Opimika Lake if road access becomes available (stock in alternate years)
Lack of Walleye Fishing Opportunities in the Zone	- create walleye spawning beds in Serene Lake (completed 1988) - assess walleye spawning beds in Reynolds and Dymond Lakes and improve if required (Reynolds Lake assessed 1988) - introduce walleye to Serene Lake through the experimental walleye program (completed 1988)

	- introduce smallmouth bass to Richer Lake to diversify fishing opportunities
	- re-introduce smallmouth bass to Little McConnell Lake to diversify fishing opportunities
User Conflicts -winter fishing on all lakes reduces summer fishing opportunities	- maintain a sanctuary on Shanty Lake from October 1 to April 30 to provide good summer brook trout fishing
	- place a sanctuary on Blue Lake from October 1 to April 30 to provide good summer splake fishing (regulation change submitted 1988)
Insufficient Scientific Knowledge	- conduct a stocking assessment of all walleye and lake trout lakes stocked (McConnell, Spring, Blue and Cut Lakes assessed in 1985)
	- survey LaSalle Lake to determine the best species for which to manage the lake
	- conduct a stocking assessment of splake in Jimmie Lake
	- survey Otter Lake in Gooderham Township to see if it is suitable for stocking and/or management of gamefish species
	- conduct a netting assessment of the walleye in Dymond Lake to determine if they are reproducing
	- conduct a study to assess the fishing potential in the Ottawa River adjacent to this Zone
Habitat Degradation -bridge crossing of Green Creek has caused erosion into the creek	- investigate alternate sites for a stream crossing

3.3.5 ZONE 4

Most of the streams in this zone contain naturally reproducing brook trout. East of the Jocko River there are numerous small coldwater lakes. The less accessible western portion of the zone contains many unsurveyed waters, most of which are thought to be shallow warmwater lakes. Walleye are found only in the Ottawa River.

Major Problems	Management Tactics
Habitat Loss or Degradation	
- acidification of waterbodies in Mulock, Stewart and Butler Townships i.e. Moose, Sparks and Crocan Lakes are extremely sensitive	- consider stocking walleye in warmwater lakes if the acidification problem can be solved
	- experiment with put-grow-and-take stocking of walleye in Moose Lake on an interim basis until the acidification problem is resolved
	- manage extremely sensitive coldwater lakes for brook trout and splake by put-and-delayed-take stocking (splake in Crocan Lake and brook trout in Sparks Lake every other year)
	- conduct alkalinity tests for Valin, Brule, Perchfin, Mitchell and Malone Lakes
	- initiate and support acidification studies
	- introduce walleye to Harrington and Brule Lakes (Harrington Lake stocked 1988)
Shortage of Walleye and Trout	
- shortage of walleye fishing opportunities	- survey lakes in Osborne, Stewart, Garrow and Lockhart Townships to locate additional waterbodies suitable for gamefish management e.g. Perchfin, White, Brule, Jocko, Malone and Sabourin Lakes (Perchfin and White Lakes surveyed 1987 and Brule Lake surveyed 1988)
	- assess walleye angling capability of Ottawa River
-coldwater fisheries in this zone must be enhanced to help meet the overall District demand	- complete surveys on unsurveyed coldwater lakes to locate suitable waterbodies for trout introductions, e.g. Alexis, Mountain, Tremblay, Bell, Carrigan, and Chime Lakes

	stock lake trout in Kearney Lake
	- remove undesirable species from suitable lakes if environmental concerns can be addressed and re-stock with trout
	- maintain water quality in all trout lakes and streams by inputting to timber management plans and other plans
	- assess trout populations and habitat in the Jocko River watershed and Antoine Creek (habitat assessed in Jocko River by North Bay Fly Fishers' Association-1988)
	- introduce brown trout to the Jocko River watershed if fish are available and if Environmental Assessment requirements can be met (if this introduction is unsuccessful, conduct an experimental brook trout stocking)
	- limit that portion of the Little Jocko River from its junction with the Big Jocko River to Highway 63 to fly fishing only (regulation change submitted 1988)
	- stock brook trout in Sparks, Lake #2 (French Twp.),Antoine, Bastien, Indian, Montreuil, Ducharme and Blueberry Lakes every second year
	- continue alternate year stocking of splake in Crooked Lake
	- introduce rainbow trout to Langevin Lake and stock every other year (introduced 1987)
Access	- improve access through the timber management program
- lack of access to northwest corner of zone limits use and management options	
- increased access to the Francis Creek system (including lakes within the system) would cause a decline in the naturally reproducing brook trout population due to over-fishing	- limit access through input to timber management plans and other resource management plans

Insufficient Scientific Knowledge	- conduct a stocking assessment of all walleye and lake trout lakes stocked (Gauvreau, Kearney and Timber Lakes assessed 1985)
Over-fishing - perceived over-fishing of lake trout in Timber Lake	- introduce splake to Timber Lake (put- and- delayed- take stocking) with alternate year stocking (completed 1987)

3.3.6 ZONE 5

Zone 5 includes part of the Ottawa River and the Mattawa River watershed. There are many small brook trout streams in this zone. These streams must be managed to their full potential in order to meet the coldwater fishery targets of the District. Much of the North Bay-Mattawa Conservation Authority area lies within this zone, and wherever possible they will be encouraged to participate in fisheries management programs. A large percentage of the District's human population resides in this zone, including residents of North Bay, Mattawa, Callander, Bonfield, Astorville, Corbeil, Redbridge and Balsam Creek.

Major Problems	Management Tactics
Shortage of Walleye and Trout	
- all suitable waterbodies must be managed to produce trout to their full potential if District coldwater fishery targets are to be met. Trout and Talon Lakes, which provide most of the potential for trout, are currently underproducing	- stock lake trout in Papineau, Talon, Trout and Turtle Lakes - introduce rainbow trout and Atlantic salmon (if available) to Trout Lake (Trout Lake is unique in being the only Ontario lake outside of the Great Lakes to have had a naturally-reproducing Atlantic salmon population) and assess the introductions (rainbow trout stocking will be discontinued if Atlantic salmon can be successfully introduced) (rainbow trout stocking commenced 1983) - introduce rainbow trout to Talon, High & Otter Lakes through a CFIP project and assess the introduction (stocked in High and Otter Lakes in 1986 and Talon Lake in 1987)

assess the rainbow trout stocking program in the Amable du Fond River (introduce brown trout if rainbow trout stocking shows poor returns)

- survey Little Pautois, Redbridge, Widdifield, Little Mulock, Lake 13 (Boulter Twp.) and Little Sturgeon Lakes to determine if they are suitable for gamefish introductions and/or management

- conduct experimental brook trout stocking and assessment projects in streams in conjunction with the North Bay-Mattawa Conservation Authority e.g. Depot Creek, North River, Balsam Creek, Sharpes Creek and Aumond Creek (stocking commenced 1987 and 1988)

- conduct an experimental brook trout stocking and assessment project in Doran Creek (stocking commenced 1987)

- stock brook trout in Little Clear, Long (Calvin Twp.), Turtle (Boulter Twp.), Loon, Olmstead, Wee Harry, Teesdale, Froggy, Long (Boulter Twp.), and Glassy Lakes every other year

- conduct trout and walleye spawning bed assessments on Trout and Talon Lakes and improve spawning beds if assessments indicate it is necessary (assessment completed on Trout Lake 1988)

- introduce splake to Guilmette Lake with alternate year stocking (stocked 1987)

- continue alternate year stocking of splake in Cahill Lake

- assess the brook trout stocking programs in Wee Harry, Olmstead, Teesdale and Glassy Lakes

	introduce walleye to Four Mile Lake (completed 1988)
	- introduce walleye through CFIP projects to Tea, Earl's, Aumond, West Aumond and Big Poplar Lakes (Tea Lake stocked in 1988 and remainder in 1986)
	- stock walleye in Talon Lake through a CFIP project
	- stock muskellunge in Nosbonsing and Trout Lakes to maintain a limited trophy fishery
Lack of easily accessible local fishing opportunities in and immediately adjacent to the City of North Bay	- complete additional lake surveys within the city limits to identify waterbodies which can be intensively managed to provide fishing opportunities close to North Bay e.g. Circle, McLean, Twinline, Hillside, Jennings, Pasmore, Camelot, Delaney, Four Mile and Depensiers Lakes (all completed in 1987 except Hillside)
	- introduce largemouth bass to Delaney, Jennings and Cameron Lakes (Cameron Lake completed 1988)
	- diversify fishing opportunities through introductions as mentioned above
Habitat Degradation - the presence of perch in many of the small lakes in Cameron Township has been identified as a problem	- if environmental concerns related to lake reclamation can be resolved, conduct surveys to identify lakes which can be reclaimed and managed for sportfish species
- there is a perceived problem concerning the impacts of ice huts on water quality of Trout Lake	- negotiate restrictions on ice huts with all users of Trout Lake
Over-fishing Lake Nosbonsing is a very important fishery in the District. There is some evidence that the Lake Nosbonsing walleye population is stressed.	- establish an intensive management and assessment program on Lake Nosbonsing to collect the fish community data necessary to develop specific management projects geared to the needs of the users and the resource (initiated 1987)

	work with CFIP groups to improve habitat (commenced 1985)
Overfishing may be contributing to the under-production of lake trout in Trout Lake	- seek public input to determine most acceptable means of reducing fishing pressure - continue to monitor fishing pressure and harvest
Overfishing of pre-spawning walleye in Talon Lake and the Mattawa River	- implement a fish sanctuary from March 15 to the Friday preceding the third Saturday in May to protect mature walleye at the narrows and Sharpes Creek areas of Talon Lake (regulation change submitted 1988) - implement a fish sanctuary at the Hurdman Dam on the Mattawa River from March 15 to May 31 (regulation change submitted, 1988)
Insufficient Scientific Knowledge	- conduct stream fish population and habitat assessments for the North River and Balsam Creek (completed by North Bay Mattawa Conservation Authority 1987 and 1988) - conduct walleye spawning bed assessments in major walleye waters in the zone - conduct a stocking and population assessment of lake trout in Trout Lake (ongoing - commenced 1985) - conduct a stocking assessment of all walleye and trout lakes stocked (Guilmette, Talon and Turtle Lakes assessed 1985) - encourage tourist operators on major tourism lakes to collect creel census information (commenced 1987) - assess the fishery in Smith Lake to determine if it can be improved

3.3.7 Zone 6

This zone is a predominantly warmwater fisheries area with brook trout being found only in Love Lake and several streams. Rainbow trout have also been stocked by the North Bay-Mattawa Conservation Authority in some streams in this zone.

Major Problems	Management Tactics
Habitat Degradation	- encourage co-operation between this Ministry, the Ministry of the Environment, the Ministry of Agriculture and Food, the North Bay-Mattawa Conservation Authority and local landowners to reduce phosphorus inputs to Wasi Lake
- occasional severe oxygen deficit in Wasi Lake related to increased levels of phosporus entering from the Wasi River watershed	
- water level manipulation on the South River reservoirs	- protect walleye spawning habitat at Corkery Chutes by reviewing applications under the Lakes and Rivers Improvement Act to ensure that they include appropriate mitigating measures
	- continue current informal agreements with Ontario Hydro to maintain water levels during and following the walleye spawning times
- erosion into Graham Creek resulting in undesirable siltation of the walleye spawning beds at Wasi Falls	- implement an erosion reduction program for Graham Creek
- McQuaby Lake is extremely sensitive to acidification	- complete experimental walleye stocking and assessment program to determine if extremely sensitive lakes can be managed through stocking
Over-fishing	- complete experimental walleye stocking and assessment to deter the role of stocking in lakes stressed by over-fishing
- there is some evidence of over-fishing in Ruth Lake	
Shortage of Walleye and Trout	- implement a fish sanctuary on Wolf Lake from March 15 to the Friday preceding the third Saturday in May to protect spawning walleye (regulation change submitted 1988)

	assess trout populations in the Wasi River and Graham, Genesee and McGillvray Creeks
	- survey Brown's and Kilrush Lakes to determine if they are suitable for stocking and/or management of gamefish species
	- continue stocking brook trout in Love Lake every second year
	- complete ongoing experimental walleye stocking program on Ruth, Wolf and McQuaby Lakes. This is part of a provincial experiment to assess the role of the stocking program in walleye management
	- assess (and improve through CFIP projects if necessary) walleye spawning beds on Ruth and McQuaby Lakes and other major walleye lakes in the zone (commenced 1987 and 1988)
	- stock walleye in Wasi Lake in cooperation with the North Bay-Mattawa Conservation Authority (commenced 1987)
Insufficient Scientific Knowledge	- conduct stocking assessments of walleye and trout lakes stocked
	- encourage tourist operators on major tourism lakes to collect creel census information

3.3.8 Zone 7

Warmwater fish species provide the majority of fishing opportunities in this zone. Only a few of the larger lakes and several streams provide suitable coldwater habitat.

Fish production from lakes in this zone is generally lower than for the rest of the District because of low fertility. The best bass fishing in the District is found here.

Major Problems	Management Tactics
Shortage of Walleye and Trout	- protect existing lake trout habitat in Memesagamesing, Stormy and Clear (Watt) Lakes - stock lake trout in Clear (Watt), Memesagamesing, Restoule, Stormy and Swalwell Lakes - complete 5 year experimental lake trout stocking program on Hampel (Clear) Lake (annual stocking up to and including 1989) - reassess lake trout stocking results in Restoule and Swalwell (Crooked) Lakes - assess lake trout spawning habitat on Stormy, Clear (Watt) and Hampel (Clear) Lakes and improve if deficient - assess brook trout population and habitat of Commanda Creek to determine suitability for stocking or habitat management (conduct experimental brook trout stocking if feasible) - stock brook trout in Schell Lake every second year and assess the stocking success to determine if that is the best species to stock in the lake (stocking commenced 1985) - survey Merrick, Beaudry, Broadwell and Kidd Lakes to determine their suitability for gamefish introductions - assess and improve walleye spawning beds on Jacks, Memesagamesing, Restoule, Stanly and Sucker (Cadden) Lakes (and other major walleye lakes in the zone) (Jack's and Memesagamesing Lakes commenced 1987 and 1988. Restoule Lake assessed 1988 - no improvements required)

	assess the following lakes for walleye introductions: Bain, Seagull and Broadwell
	- encurage stocking of walleye through CFIP projects in Commanda, LeGrou, Restoule, Chartier, Dobbs and Memesagamesing Lakes
	- implement fish sanctuaries to protect mature walleye at spawning sites from March 15 to the Friday preceding the third Saturday in May at the Kimikong River, Rainy Creek and the Little Pickerel River at Dobbs Lake (regulation change submitted 1988)
	- assess the success of the walleye stocking in Pine Lake
	- encourage greater utilization of large- and smallmouth bass populations to diversify demand
	- introduce largemouth bass to Little and Big Rainy Lakes
Insufficient Scientific Knowledge	- conduct stocking assessments of walleye and trout lakes stocked (Restoule and Watt (Clear) Lakes assessed 1985)
	- assess the impacts of beaver dams on spawning Commanda Lake pike
	- conduct a creel census on Restoule, Stormy and Commanda Lakes to determine fish population status, angling pressure and harvest levels
	- survey Empy Lake to determine the best species for which to manage the lake (completed 1987. Smallmouth bass spawning bed work done in 1988)
	- encourage tourist operators on major tourism lakes to collect creel census information

Access	
- Swalwell and Woodcock Lakes are important to the local tourist industry and additional access would be detrimental	- discourage further access to Swalwell and Woodcock Lakes through input to the District Roads Committee and through review of and input to timber management plans, other resource management plans, road or pipeline construction plans, etc.
Over-harvest	
- of pike in Satchels Lake	- implement a winter sanctuary from January 1 to the Friday preceding the third Saturday in May (regulation change submitted 1988)
- (object will be to provide a trophy pike fishery for tourist operators while maintaining opportunities for existing users)	

3.3.9 Zone 8

The main warmwater fisheries in this zone are found in Tomiko, Chebogomog, Deer, Muskosung and Cache Lakes. There are also several good warmwater lakes located in Latchford and Bertram Townships and the Sturgeon and Veuve Rivers provide good warmwater fisheries. This zone has no coldwater lakes and trout are found only in Smoky Creek.

Major Problems	Management Tactics
Shortage of Walleye and Trout	
- there is a lack of suitable coldwater habitat	- experimentally stock brook trout in Smoky Creek to supplement existing populations and assess to determine success of stocking (stocked 1988)
- little can be done to provide trout fishing opportunities since the waters in this zone lack the capability to produce coldwater species	
Habitat Degradation	
- run-off from agricultural areas into the Veuve River has caused a decline in quality of fish habitat	- work with the Ministry of the Environment, local municipalities, the Ministry of Agriculture and Food and landowners to develop erosion control programs to reduce runoff
There is an insufficient supply of walleye angling opportunities in the area north of Highway 17 and west of Highway 64	- designate the mouth of Mosquito Creek as a spring fish sanctuary from March 15 to May 31 to protect mature walleye (regulation change submitted 1988)

- extend the sanctuary on the Tomiko River at Tomiko Lake (regulation change submitted in 1988)

- provide supplementary stocking of walleye in Marshall, Mercer, Deer, Muskosung and Tomiko Lakes through CFIP programs (Muskosung stocked commencing in 1985)

- introduce walleye to Cache and Bain Lakes (Cache Lake stocked 1988)

- encourage utilization of other species such as bass and pike

- stock largemouth bass in Cache Lake if walleye stocking is unsuccessful

- introduce smallmouth bass to Pike Lake

- stock muskellunge in Muskosung Lake to maintain a limited trophy fishery

Insufficient Scientific Knowledge

- conduct a creel census on Tomiko Lake to assess the fishing pressure, harvests and status of fish populations (completed 1988)

- conduct a fish population assessment on Tomiko Lake

- assess Bastedo, Deer, Fellows, Lynch and Duff Creeks to determine their suitability for trout stocking

- assess Badgerow and Duff Lakes to determine their suitability for walleye stocking (completed 1987, walleye stocked 1988)

- conduct lake surveys on Red Pine and Moss Lakes to determine if they are suitable for gamefish introductions and/or management

- assess the walleye spawning run and spawning habitat in the Veuve River to determine if it can be improved (completed 1988)

- conduct stocking assessments of walleye lakes stocked

STRATEGY/TACTICS	LOCATION	FUNDING			
		PRESENT FUNDING	ADDITIONAL FUNDING	CFIP OR VOLUNTEER ASSISTANCE ENCOURAGED	PROBLEM/ISSUE ADDRESSED
-stock walleye through CFIP projects				X	
-improve habitat through CFIP projects (commenced 1985)				X	
-implement a public awareness program to notify of regulation changes			X		
STOCK TROUT SPECIES IN SUITABLE COLDWATER LAKES, RIVERS AND STREAMS					Shortage of Trout
-stock lake trout in selected lakes	-Bear, Clear (Watt), Dana, Grassy, Kearney, Marten, McConnell, Memesagamesing, Papineau, Rachel, Restoule, Spring, Stormy, Swalwell, Talon, Threetrails, Trout and Turtle Lakes	X			
-continue experimental lake trout stocking in Hampel Lake annually up to and including 1989	-Hampel Lake	X			
-stock brook trout annually in selected lakes	-Dwyer, Shanty, Round and Troutbait Lakes	X			

- assess the walleye spawning beds in all major walleye lakes in the zone to determine if improvements can be made

- conduct an assessment of the fish populations and habitat in the Sturgeon River

- encourage the tourist operators on the major tourism lakes to collect creel census information

Access

- if walleye are introduced successfully to Duff Lake, investigate means of improving access

4.0 IMPLEMENTATION

4.1 General

This Fisheries Management Plan provides direction for fisheries management activities in the North Bay District to the year 2000. The strategies and tactics identified in this plan will be implemented through:

- the preparation of a 5-year implementation schedule outlining programs and projects to be undertaken over the next 5 years.

- the preparation of annual work plans specifying programs and projects to be approved and funded through the Ministry's budgeting process.

- cooperative management efforts with the North Bay-Mattawa Conservation Authority, clubs, associations or municipalities in projects funded through special programs such as the Community Fisheries Involvement Program.

- the review of, and input to work plans and development proposals from other government agencies, municipalities and the private sector where opportunities for such input are provided.

- participation in the planning and undertaking of other Ministry of Natural Resources' programs (e.g. timber management plans, Crown land dispositions etc.)

This plan will be reviewed at 5- year intervals or whenever major revisions are necessary. These reviews will follow the same approval process as this document, including public review and approval by the District Manager and Regional Director. Changes will be reflected in the District Land Use Guidelines and other affected resource management plans where applicable and likewise, this Fisheries Management Plan may be revised to reflect major revisions in the District Land Use Guidelines or other resource management plans.

STRATEGY/TACTICS	LOCATION	FUNDING			
		PRESENT FUNDING	ADDITIONAL FUNDING	CFIP OR VOLUNTEER ASSISTANCE ENCOURAGED	PROBLEM/ISSUE ADDRESSED
-stock brook trout every other year in selected lakes	-Olmstead, Pole, Schell, Norway, Mug, Emerald (McAuslan Twp.), Secord, Camp, Quarry, Pine, Little Clear, Sparks, Long(Calvin Twp.),Lake #2(French Twp.), Turtle (Boulter Twp.), Antoine, Bastien, Loon, Love, Montreuil, Ducharme, Wee Harry, Apple, High, Teesdale, Indian, Blueberry, Long (Boulter Twp.), Froggy and Glassy Lakes	X			
-stock brook trout every three years in selected lakes	-Modder Lake	X			
-experimentally stock brook trout in coldwater streams and rivers (in cooperation with North Bay-Mattawa Conservation Authority for some waterbodies) and assess stocking	-North and Tomiko Rivers, Depot, Balsam, Sharpes, Aumond, Commanda, Smoky, Doran, Silver, Azen, McArty, Theriault, Sinton Creeks and Little Jocko River (if brown trout introduction is unsuccessful) (Stocking commenced 1987 or 1988 in all but Tomiko River, Commanda Creek and Little Jocko River)	X			
-stock more productive splake lakes annually with splake	-Pond, Jimmie and Blue Lakes	X			

The implementation schedule for this plan will also be reviewed internally by District staff on an annual basis to allow for minor changes as a result of changes in scientific knowledge, management techniques or information about the resource.

The implementation of this Fisheries Management Plan is subject to the requirements of the Environmental Assessment Act. Compliance with the requirements of the Act may result in changes to the tactics identified in this plan.

4.2 Implementation Schedules

Management strategies and tactics to address fisheries resource problems and issues in North Bay District have been identified in this plan. The tactics which will be implemented over the first 5 years of this plan (4 years for Lake Nipissing) are summarized in the implementation schedules shown in Tables 5 and 6 and locations are given in Figures 2 and 3. The implementation schedules also indicate which programs can be carried out using existing funding, which would require additional funding and which would benefit from CFIP or volunteer assistance. More specific timing of projects will be identified in annual work plans.

Fisheries management programs were continued while this plan was being prepared. Any projects already commenced or completed are identified as such in the following implementation schedules; however ongoing projects which are conducted annually or on a regular basis, for example stocking, will not be identified this way.

STRATEGY/TACTICS	LOCATION	FUNDING			PROBLEM/ISSUE ADDRESSED
		PRESENT FUNDING	ADDITIONAL FUNDING	CFIP OR VOLUNTEER ASSISTANCE ENCOURAGED	
-stock other splake lakes every other year with splake	-Brownbear, Woods, Wolf, Timber, Guilmette, Iron, Kervin, Big McDougal, Crocan, Cahill, Crooked, Splake and Hybrid Lakes (introduced to Timber and Guilmette in 1987)	X			
-stock splake in some lakes every three years	-Reynolds Lake				
-stock rainbow trout every other year in selected lakes	-Orient, Wyse, Little McDougal and Langevin Lakes (introduced to Langevin in 1987)	X			
-encourage CFIP projects to stock rainbow trout in Trout and Talon Lakes (Trout Lake stocking to be discontinued if Atlantic salmon are stocked)	-Trout, Talon, High and Otter Lakes (Trout Lake stocking commenced 1983, High and Otter Lakes stocked 1986 and Talon Lake stocked 1988)			X	
-introduce brown trout to the Little Jocko River (if available and if Environmental Assessment Act requirements can be met)	-Little Jocko River	X			
-introduce brown trout to the Amable du Fond River if assessment shows a poor return from rainbow trout (if available and if Environmental Assessment Act requirements can be met)	-Amable du Fond River	X			

TABLE 5: FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE - 1987-1990
NORTH BAY DISTRICT - LAKE NIPISSING

STRATEGY/TACTICS	LOCATION	FUNDING			
		Present Funding	Additional Funding	CFIP or Volunteer Assistance Encouraged	Problem/Issue Addressed
Protect fisheries habitat - provide input to both internal and external plans and proposals (e.g. environmental assessments, severance proposals, shoreline development proposals, resource management plans, road proposals, municipal plans, etc.)	Lake Nipissing and inflowing watersheds	X			Habitat Degradation
- carry out on-site inspections of projects such as road construction, dredging or clearing activities to ensure that habitat degradation doesn't occur		X			
- enforce existing legislation to prevent habitat degradation (e.g. Fisheries Act, Lakes and Rivers Improvement Act, etc.)		X			
- provide input to the Sturgeon River - Lake Nipissing-French River watershed advisory board to ensure maintenance of adequate water levels		X			
- provide input to ensure that fisheries concerns are adequately addressed during improvements to the Callander sewage lagoon and other sewage treatment facilities around the lake		X			

STRATEGY/TACTICS	LOCATION	FUNDING			
		PRESENT FUNDING	ADDITIONAL FUNDING	CFIP OR VOLUNTEER ASSISTANCE ENCOURAGED	PROBLEM/ISSUE ADDRESSED
encourage CFIP projects to improve habitat and provide supplementary stocking of walleye to selected lakes	-Wasi Lake (in cooperation with the North Bay-Mattawa Conservation Authority), (commenced 1987), Commanda, LeGrou, Restoule, Memesagamesing, Chartier, Dobbs, Tilden, Marten, Opeechee, Opeechee Boys, Marian, Red Cedar, Marshall, Deer, Mercer, Muskosung, (stocking commenced in 1985) Tomiko, Nosbonsing and Little Tomiko Lakes (Little Tomiko stocking commenced 1988.) (Some of the others stocked on ongoing basis)			X	
ENCOURAGE UTILIZATION OF SPECIES OTHER THAN WALLEYE AND TROUT					Shortage of Walleye and Trout
-stock muskellunge in selected lakes to maintain a limited trophy fishery	-Nosbonsing, Trout and Muskosung Lakes	X			Lack of Public Awareness
-introduce largemouth bass to selected lakes	-Little Rainy, Big Rainy, Delaney, Jennings, and Cameron Lakes (Also Bain, Tanner and Cache Lakes if walleye stocking is unsuccessful) (Cameron Lake stocked 1988)	X			

STRATEGY/TACTICS	LOCATION	FUNDING			
		Present Funding	Additional Funding	CFIP or Volunteer Assistance Encouraged	Problem/Issue Addressed
Inventory and Assess Fisheries Habitat	Lake Nipissing and inflowing watersheds				Habitat Degradation and Insufficient Scientific Knowledge
- inventory spawning and rearing habitat			X		
- conduct benthos and plankton sampling in 1988	Lake Nipissing		X		
-collect water chemistry and limnology data at 10 sampling stations on the lake in 1990	Lake Nipissing	X			
- continue littoral macrophyte and shoreline vegetation survey until completed (1988, 1989 and 1990)	Lake Nipissing		X		
Improve fisheries habitat	Lake Nipissing and inflowing watersheds				Habitat Degradation
- improve any degraded spawning and rearing habitats which are identified			X	X	
- improve the spawning habitat in the Sturgeon River following an improvement in the water quality			X		
- participate with the North Bay-Mattawa Conservation Authority, Chisholm Twp., the Ministry of Agriculture and Food, the Ministry of the Environment and local landowners to address erosion and nutrient enrichment problems in the Wasi River watershed		X			

STRATEGY/TACTICS	LOCATION	FUNDING			
		PRESENT FUNDING	ADDITIONAL FUNDING	CFIP OR VOLUNTEER ASSISTANCE ENCOURAGED	PROBLEM/ISSUE ADDRESSED
-introduce smallmouth bass to selected lakes	-Pike and Richer Lakes	X			
-encourage the preparation of brochures explaining where and how to catch and prepare under utilized species	-All waterbodies		X		
CONDUCT FISH POPULATION AND STOCKING ASSESSMENTS					Insufficient Scientific Knowledge
-Assess the fish populations in selected rivers and streams	-Graham, Genesee, Depot, Balsam, Sharpes and Aumond Creeks, the North River and the Jocko River watershed east of Highway 63 (North River and Balsam Creek assessed by Conservation Authority 1987 and 1988)		X		
-conduct stocking assessments of brook trout lakes	-Apple, Schell, Wee Harry, Olmstead, Teesdale and Glassy Lakes	X			
-conduct stocking assessments of splake lakes	-Iron, Pond, Woods, Wolf, Jimmie, Timber, Guilmette, Crocan, Splake and Hybrid Lakes	X			
-assess the success of rainbow trout introductions	-Trout and Talon Lakes		X		

STRATEGY/TACTICS	LOCATION	FUNDING			
		Present Funding	Additional Funding	CFIP or Volunteer Assistance Encouraged	Problem/Issue Addressed
Control illegal harvest - increase enforcement effort on the lake to reduce poaching	Lake Nipissing		X		Over-fishing
Control over-fishing - maintain spring sanctuaries (March 15 to the Friday preceding the Victoria Day weekend) and fall sanctuaries (October 1 to December 31)	Callander Bay, South River and Sturgeon River	X			Over-fishing
- maintain a spring sanctuary (March 15 to the Friday preceding the Victoria Day weekend) for 100 metres out from the shore of Iron Island	Iron Island	X			
- maintain shortened seasons for walleye and pike (from the Saturday preceding Victoria Day to March 15)	Lake Nipissing	X			
- continue restriction to use of only one line while angling through the ice	Lake Nipissing	X			
- negotiate solutions to user group conflicts	Lake Nipissing	X			Over-fishing
- encourage greater public involvement in management projects	Lake Nipissing			X	Over-fishing

STRATEGY/TACTICS	LOCATION	FUNDING			
		PRESENT FUNDING	ADDITIONAL FUNDING	CFIP OR VOLUNTEER ASSISTANCE ENCOURAGED	PROBLEM/ISSUE ADDRESSED
-assess the rainbow trout population in the Amable du Fond River	-Amable du Fond River		X		
-conduct stocking assessments of lake trout lakes	-Restoule, Swalwell (Crooked), Marten, Bear, Trout, Rachel and Dana Lakes (Ongoing - commenced 1985 on Restoule, Marten and Trout Lakes, plus additional lakes)	X			
-assess the success of walleye introductions	-Dymond and Pine Lakes	X			
-assess the fish population and fishing potential of the Ottawa River	-Ottawa River		X		
COLLECT INFORMATION ON FISHING PRESSURE, FISH POPULATIONS AND HARVESTS					Insufficient Scientific Knowledge
-conduct creel surveys on selected waterbodies	-Restoule, Stormy, Commanda, Tomiko, Red Cedar, LeGrou, Chartier, Stanly and Dobbs Lakes (Tomiko completed 1988)		X		
-encourage tourist operators to collect creel census information	-major tourism lakes (commenced 1987 in Marten River and Lake Nosbonsing areas)		X		

STRATEGY/TACTICS	LOCATION	FUNDING			
		Present Funding	Additional Funding	CFIP or Volunteer Assistance Encouraged	Problem/Issue Addressed
Collect information on fishing pressure and harvests					Insufficient Scientific Knowledge
- conduct annual summer and winter creel surveys for main areas of the lake	Lake Nipissing excluding the French River and West Bay areas	X			
- conduct a fall creel census in 1989 and 1990	North Bay, Callander, South Bay, Sturgeon Falls, Hardwood Island and Iron Island areas of Lake Nipissing		X		
- conduct a summer creel census on West Bay and the Upper French R. in 1987 and 1988	West Bay and Upper French River areas		X		
- monitor and sample the commercial fish harvest annually	Lake Nipissing		X		
Collect trend-through-time data on the status of Lake Nipissing's walleye population	Lake Nipissing	X			Insufficient Scientific Knowledge
-conduct a trawl netting project annually to assess the annual recruitment of walleye into the population					

STRATEGY/TACTICS	LOCATION	FUNDING			
		Present Funding	Additional Funding	CFIP or Volunteer Assistance Encouraged	Problem/Issue Addressed
-conduct annual trapnetting and tagging projects to assess the status of the walleye population, its age structure and dispersal patterns, to provide fertilized eggs for walleye rearing projects and to provide additional fish population data	Wasi Falls, Chapman Chutes and the west end of Lake Nipissing	X			
Conduct an annual computer analysis of the data collected in the above-mentioned projects		X			Insufficient Scientific Knowledge
Conduct analysis of data collected on other species besides walleye, pike and perch			X		Insufficient Scientific Knowledge
Collect information on sturgeon - conduct a study to assess sturgeon spawning habitat and harvests			X		Insufficient Scientific Knowledge
- investigate available aging techniques for sturgeon and encourage research projects to develop better techniques			X		
Initiate a study to assess the survival of "catch-and-release" walleye taken from deeper waters	Lake Nipissing		X		Insufficient Scientific Knowledge

TABLE 6: FISHERIES MANAGEMENT IMPLEMENTATION SCHEDULE, 1987-1991
NORTH BAY DISTRICT - ZONES 1 TO 8

STRATEGY/TACTICS	LOCATION	FUNDING			PROBLEM/ISSUE ADDRESSED
		PRESENT FUNDING	ADDITIONAL FUNDING	CFIP OR VOLUNTEER ASSISTANCE ENCOURAGED	
PROTECT FISHERIES HABITAT	All waterbodies	X			Habitat Degradation
-provide input to both internal and external plans and proposals (e.g. environmental assessments, severance proposals, resource management plans, road proposals, municipal plans, etc.)					
-enforce existing legislation to prevent habitat degradation (e.g. Fisheries Act, Lakes and Rivers Improvement Act, etc.)	All waterbodies	X			Habitat Degradation
-work with landowners, municipalities and other agencies to minimize the impacts of shoreline modifications, agricultural practices and drainage programs	All waterbodies	X			Habitat Degradation
-conduct site inspections of projects such as road construction, dredging or clearing activities where necessary and make recommendations to ensure that fish habitats are protected	All waterbodies	X			Habitat Degradation

APPENDIX 1
GENERAL PROBLEMS AND PROPOSED STRATEGIES
AND TACTICS FOR THE SPORT FISHERY

PROBLEM: HABITAT DEGRADATION

STRATEGY	TACTICS
Protect Fisheries Habitat	- provide input to both internal and external plans and proposals (e.g. environmental assessments, severance proposals, timber management plans, other resource management plans, shoreline development proposals, road proposals, municipal plans, etc.)
	- enforce existing legislation to prevent habitat degradation (e.g. Fisheries Act,Lakes and Rivers Improvement Act, etc.)
	- educate the general public regarding the importance of fish habitat
	- work with landowners and municipalities to minimize the impacts of shoreline modifications, agricultural practices and drainage programs
Inventory and Assess Fisheries Habitat	- survey new waters or update old lake surveys as necessary
	- support water quality,fish habitat and acidification studies being conducted by other agencies (e.g. Ministry of the Environment, Conservation Authority, universities, etc.)
	- identify and assess key fish habitat, e.g. spawning beds
Improve Fisheries Habitat	- rehabilitate degraded spawning beds
	- improve stream habitats
	- create new spawning areas

STRATEGY/TACTICS	LOCATION	FUNDING			
		PRESENT FUNDING	ADDITIONAL FUNDING	CFIP OR VOLUNTEER ASSISTANCE ENCOURAGED	PROBLEM/ISSUE ADDRESSED
-provide input to Ontario Hydro and Sturgeon River - Lake Nipissing-French River watershed advisory board to minimize water level fluctuation problems	All waterbodies	X			Habitat Degradation
-implement no live baitfish restrictions	Dwyer and Modder Lakes (regulation change submitted 1988) and Kervin Lake	X			Habitat Degradation
INVENTORY AND ASSESS FISHERIES HABITAT					
-conduct habitat assessments of creeks and rivers	-Bastedo, Deer, Fellows, Lynch and Duff Creeks	X			Shortage of Trout and Habitat Degradation
	-Sinton Creek, Veuve (assessed 1988) and Jocko Rivers (Jocko assessed by North Bay Fly Fishers' Association 1988)		X		
-assess pH levels of acid-stressed lakes during spring run-off	-Sturgeon, Rock Island, Noble, Bear, North Spruce, Hammell, Poplar, Ross and Finlayson Lakes		X		Habitat Degradation
-assess lake trout spawning habitat	-Marten, Bear, Trout, (completed 1988),Talon, Stormy, Clear (Watt) and Hampel (Clear) Lakes		X		Shortage of Trout
-assess walleye spawning habitat	-Reynolds (completed 1988), Trout, Talon, Ruth, McQuaby, Jacks, Memesagamesing, Restoule, Stanly and Sucker Lakes	X			Shortage of Walleye

STRATEGY/TACTICS	LOCATION	FUNDING			
		PRESENT FUNDING	ADDITIONAL FUNDING	CFIP OR VOLUNTEER ASSISTANCE ENCOURAGED	PROBLEM/ISSUE ADDRESSED
-assess the impacts of beaver dams on pike populations	-Commanda Lake	X			Habitat Degradation
-survey lakes to determine if they are suitable for game fish introductions or management	-Clem, Turcotte, Minnow, Spot, #2 and #4 Lakes (Gladman Twp.) Finlayson, Lake #10 (Stewart Twp.), LaSalle, Perchfin, White, Malone, Alexis, Mountain, Tremblay, Bell, Carrigan, Chime, Circle, McLean, Twinline, Jennings, Pasmore, Camelot, Delaney, Four Mile, Depensiers, Brown's, Kilrush, Kidd, Bain, Seagull, Broadwell, Bastedo, Badgerow, Duff, Brule , Otter, Jocko, Cache, Red Pine, Oderkirk, McNish, Little Pautois, Little Sturgeon (Papineau), Round and Empy Lakes, #2 and #3 Lakes (Afton Twp.), #5 and #17 Lakes (Scholes Twp.) and #15 Lake (Macbeth Twp.) (Perchfin, White, Circle, McLean, Twinline, Jennings, Pasmore, Camelot, Delaney, Four Mile, Depensiers, Badgerow, Duff and Empy Lakes surveyed 1987. Brule, Oderkirk and McNish Lakes surveyed 1988.)	X (2 lakes)	X (remainder)		Insufficient Scientific Knowledge, Shortage of Walleye and Trout, Lack of easily accessible fishing opportunities near North Bay
-inventory fisheries habitat to provide data for timber and other resource management planning input	-All waterbodies		X		Habitat Degradation

STRATEGY/TACTICS	LOCATION	FUNDING			
		PRESENT FUNDING	ADDITIONAL FUNDING	CFIP OR VOLUNTEER ASSISTANCE ENCOURAGED	PROBLEM/ISSUE ADDRESSED
IMPROVE FISHERIES HABITAT					
-create shoreline cover around brook trout and splake lakes	-Shanty, Jimmie, Camp and Pole Lakes, and others to be identified by assessment		X		Habitat Degradation
-improve walleye and trout spawning habitat	-Tilden, Serene, Jacks, Grassy, Stanly, Sucker, Silver and Tee Lakes, Holdridge Creek, Kimikong River and an additional 5 waterbodies to be identified as a result of assessment (lakes to be assessed include Trout, Talon, Marten, Bear, Stormy, Clear (Watt), Hampel (Clear), Opeechee, Reynolds, Memesagamesing and Restoule Lakes) (Spawning bed work commenced on Jacks, Grassy and Memesagamesing Lakes 1987 and 1988. Work completed on Tilden and Serene Lakes 1988. Restoule Lake assessed 1988 -- no improvements required)		X		Shortage of Walleye and Trout

STRATEGY/TACTICS	LOCATION	FUNDING			
		PRESENT FUNDING	ADDITIONAL FUNDING	CFIP OR VOLUNTEER ASSISTANCE ENCOURAGED	PROBLEM/ISSUE ADDRESSED
-encourage groups to improve walleye and trout spawning habitat through the CFIP program	-Nosbonsing, Ruth, Wolf and McQuaby Lakes (Nosbonsing commenced 1985, remainder commenced 1987 and 1988)			X	Shortage of Walleye and Trout
-implement an erosion reduction program	-Graham Creek		X		Habitat Degradation
CONTROL ILLEGAL HARVEST	-All waterbodies	X			Shortage of Walleye and Trout
-direct enforcement effort to problem areas					
-promote public awareness		X			Lack of Public Awareness
CONTROL OVER-FISHING		X			Over-fishing, Shortage of Trout
-place January sanctuaries on selected lake trout lakes	-Emerald, Manitou, Eagle-rock, Turtleshell, Gull, Cucumber, Lower Bass, Clearwater, Pond and Woods Lakes (completed - in effect January 1989)				
-impose winter sanctuaries on selected walleye and trout lakes (dates to be specified)	-Wicksteed, Cut, McConnell, Shanty and Blue Lakes (regulation changes submitted 1988 for lakes not already covered)	X			Over-fishing, Shortage of Trout

STRATEGIES/TACTICS	LOCATION	FUNDING			
		PRESENT FUNDING	ADDITIONAL FUNDING	CFIP OR VOLUNTEER ASSISTANCE ENCOURAGED	PROBLEM/ISSUE ADDRESSED
-impose spring sanctuaries to protect mature walleye (March April, May - dates to be specified)	-narrows and Sharpes Creek areas of Talon Lake, Wolf Lake, Tomiko River at Tomiko Lake, Kimikong River, Rainy Creek, Little Pickerel River at Dobbs Lake, the mouth of Mosquito Creek and the Mattawa River at Hurdman Dam (regulation changes submitted 1988)	X			Over-fishing, Shortage of Walleye
-implement fly-fishing only regulations	-portion of Little Jocko River (regulation change submitted 1988)		X		Shortage of Trout
-implement a winter sanctuary from January 1 to the Friday preceding the third Saturday in May to promote a trophy pike fishery	-Satchels Lake (regulation change submitted 1988)		X		
ESTABLISH AN INTENSIVE MANAGEMENT AND ASSESSMENT PROGRAM ON LAKE NOSBONSING (initiated 1987) (May include some or all of the following)	-Lake Nosbonsing				Over-fishing, Shortage of Walleye
-conduct fish population assessments		X			
-establish public involvement program to identify needs			X		
-conduct a creel census			X		

STRATEGY/TACTICS	LOCATION	FUNDING			
		PRESENT FUNDING	ADDITIONAL FUNDING	CFIP OR VOLUNTEER ASSISTANCE ENCOURAGED	PROBLEM/ISSUE ADDRESSED
-re-introduce Atlantic salmon to Trout Lake (if available)	-Trout Lake	X			
STOCK WALLEYE IN SUITABLE LAKES					Shortage of Walleye
-continue the experimental stocking and assessment project (any additional fish from this project will be used for the introductions mentioned below)	-Wolf, Ruth and McQuaby Lakes and 6 additional lakes in Temagami and Sudbury Districts	X			
-encourage CFIP projects to improve habitat and introduce walleye to selected lakes	-Grassy, Theriault, Sargesson, Hobbs, Bain, Harrington, Four Mile, Big Poplar, Brule, Moose, Aumond, West Aumond, Tea, Earl's and Serene Lakes (Theriault, Big Poplar, Aumond, West Aumond and Earl's Lakes stocked in 1986. Grassy, Cache, Harrington, Four Mile, Tea and Serene Lakes stocked in 1988.)			X	
-encourage CFIP projects to rehabilitate walleye populations through habitat improvement and stocking in selected lakes	-Silver and Tee Lakes (commenced 1988 - stocking commenced in Silver in 1986) and Talon Lake			X	

STRATEGY/TACTICS	LOCATION	FUNDING			
		PRESENT FUNDING	ADDITIONAL FUNDING	CFIP OR VOLUNTEER ASSISTANCE ENCOURAGED	PROBLEM/ISSUE ADDRESSED
PROVIDE INFORMATIONAL MATERIALS TO THE PUBLIC	-districtwide				Lack of Public Awareness
- produce a District fishing map (completed 1988)			X		
- reprint lake contour maps			X		
IMPROVE ACCESS TO THE NORTHWEST CORNER OF ZONE 4	-northwest corner of Zone 4	X			Access
-through input to the timber management program					

	encourage CFIP projects which improve fisheries habitat
	- support projects by other agencies which improve fisheries habitat (e.g. spawning bed creation through road and pipeline stream crossings)

PROBLEM: SHORTAGE OF WALLEYE AND TROUT

STRATEGY	TACTICS
Protect and Enhance Existing Naturally Reproducing Walleye and Trout Populations	- protect walleye and trout habitat through plan input and review and enforcement
	- control over-harvesting and illegal harvest by regulation and enforcement
	- adhere to the strategies and guidelines for lake trout lakes as defined in DLUG
	- assess and improve walleye and lake trout spawning beds and brook trout stream habitat
	- supplemental stocking
	- implement special regulations such as catch-and-release fishing, gear restrictions, etc.(e.g. fly-fishing only)
Create and Maintain Additional Walleye and Trout Populations	- locate suitable waterbodies and introduce walleye and trout species (including lake trout, brook trout, splake, rainbow trout, brown trout and Atlantic salmon)
	- create and maintain populations through stocking (where environmental conditions are not suitable for natural reproduction)
	- remove undesirable competitive species such as perch from suitable lakes and introduce trout(if environmental concerns related to lake reclamation can be resolved)

	- increase use of splake and rainbow trout in put-grow-and-take stocking programs
	- provide an extension service to assist landowners in establishing trout fisheries in ponds on their property
Encourage Utilization of Other Species	- provide maps and brochures to inform the public about these species (where they are found, how to catch them and their edibility)
	- introduce alternate species such as large- and smallmouth bass to waters not suited for walleye or trout (when these waters are identified)
	- increase access to under-utilized lakes
PROBLEM: OVER-FISHING	
Enhance Existing Populations	- provide supplemental stocking
Encourage Utilization of Other Species	- provide public awareness programs to inform the public about these species (where they are found, how to catch them and their edibility)
	- introduce alternate species in key areas
	- increase access to under-utilized lakes
Limit Fish Harvest	- implement regulations regarding size limits, catch limits, sanctuaries on fish concentration areas, gear, equipment and bait restrictions
Limit Angling Pressure	- implement regulations regarding sanctuaries, seasons and equipment limitations (with coordination between adjacent districts to ensure pressure is not simply transferred to another area)
	- impose restrictions on access and overnight camping
Encourage Catch and Release Fishing	

STRATEGY	TACTICS
Control Illegal Harvest	- direct enforcement effort to problem areas
	- promote public awareness
Allocate Shares of the Resource to Specific Types of Use	- seek public participation to establish a fair allocation system
	- establish summer or winter sanctuaries
	- impose gear restrictions such as limitations on number of lines or use of electronic equipment
	- limit access to lakes designated for outpost camps

PROBLEM: LACK OF PUBLIC AWARENESS

STRATEGY	TACTICS
Improve Communications and Public Education	- supply brochures and news releases which provide information about fisheries management and current surveys
	- give talks on fisheries management to user groups
	- use exhibits or interpretive programs at parks and hatcheries to supply information
	- work with local school boards to add teaching units on fisheries management to the curriculum
	- produce a fishing map to advise the public of fishing opportunities and to help spread fishing pressure over the area (completed 1988)
	- post signs indicating that a lake has been stocked with a particular species

STRATEGY	TACTICS
Promote Public Involvement in Fisheries Management	- encourage participation in CFIP and other volunteer projects and advertise the results
	- hold open houses to solicit input from the public when preparing management plans or resolving user conflicts
	- expand the Lake Nipissing advisory board to be a representative District fisheries advisory board

PROBLEM: INSUFFICIENT SCIENTIFIC KNOWLEDGE

STRATEGY	TACTICS
Inventory and Assess Habitat	- conduct lake surveys
	- conduct stream surveys and stream habitat assessments
Assess Harvests	- conduct creel census projects
	- cooperate with Indian bands to obtain harvest estimates
Assess Fish Populations	- use netting surveys to assess fish communities
	- conduct creel census projects
	- monitor spawning runs
	- sample commercial fishery harvest
	- assess stream populations by electrofishing

STRATEGY	TACTICS
Assess Stocking Programs	- assess trout stocking by gill net ting (some lakes may be converted to splake from brook or lake trout as a result of stocking assessments)
	- assess brown and rainbow trout stocking to determine what district waterbodies would be most suitable for stocking with either of these species
	- continue MNR experimental walleye culture and stocking program for 5 years, with the target being to rear and stock 150,000 fingerlings annually in 9 lakes (several of which are in Sudbury and Temagami Districts) and assess the results. Additional fish produced beyond this target number will be used for new introductions in other waterbodies
	- assess CFIP walleye culture projects
Assess Angler Use of and Demand For the Resource	- utilize provincial mail surveys based on angling licence sales
	- conduct aerial recreation surveys
	- conduct creel surveys
	- seek public input to MNR planning and management initiatives
Support Fisheries-Related Studies Being Conducted by Other Agencies (e.g. Ministry of the Environment, North Bay-Mattawa Conservation Authority, universities)	

PROBLEM: ACCESS

STRATEGY	TACTICS
Increase Access Where Lack of Access is a Problem	- seek input from the public to identify lakes where additional access would be beneficial

STRATEGY	TACTICS
	- provide input to timber management plans, other resource management plans, road or pipeline construction plans, etc. - identify areas requiring access through the District Roads Committee
Prevent Additional Access Where it Would be Detrimental	- identify and designate lakes as outpost camp lakes - seek input from the public to identify lakes to avoid accessing further - identify areas where further access should be avoided through input to the District Roads Committee and resource management plans and assist in devising and enforcing methods to control use of roads built for other purposes

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(1.00 k P.R., 89 03 31)
ISBN 0-7729 - 5394 - 5

MAPS NOT FILMED

CARTES OMISES